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Hung

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(54) **ABDOMINAL EXERCISING DEVICE WITH ROTATION BODY AND COUNTERWEIGHT**

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A63B 21/22 (2006.01)
A63B 21/05 (2006.01)

(52) **U.S. Cl.** **482/140**; 482/110; 482/128

(58) **Field of Classification Search** 482/121, 482/122, 123, 127, 128, 93, 110, 62, 133, 482/139, 140; 446/238, 266
See application file for complete search history.

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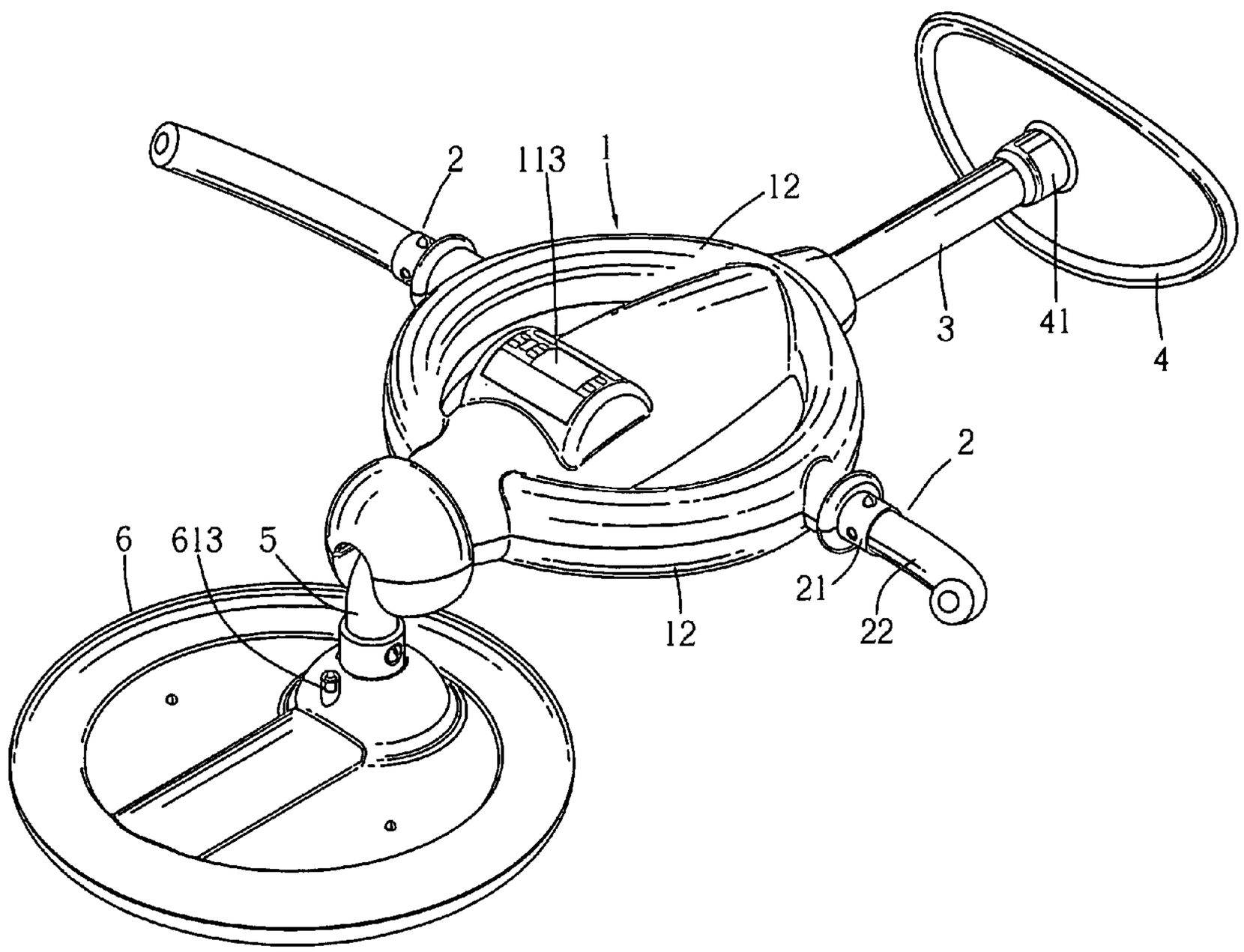
(57) **ABSTRACT**

An exercising device includes a main body, two handles, a support rod, a resting board, a connecting lever, and a rotation body. The main body includes two casings, a slide, and an elastic member. The rotation body includes a pivot ring secured on the connecting lever, a first disk rotatably mounted on the pivot ring, a second disk rotatably mounted on the pivot ring and combined with the first disk so that the pivot ring is located between the first disk and the second disk, and a counterweight mounted between the first disk and the second disk to rotate therewith. Thus, the exercising device is used to exercise a user's arms, waist and abdomen simultaneously.

20 Claims, 10 Drawing Sheets



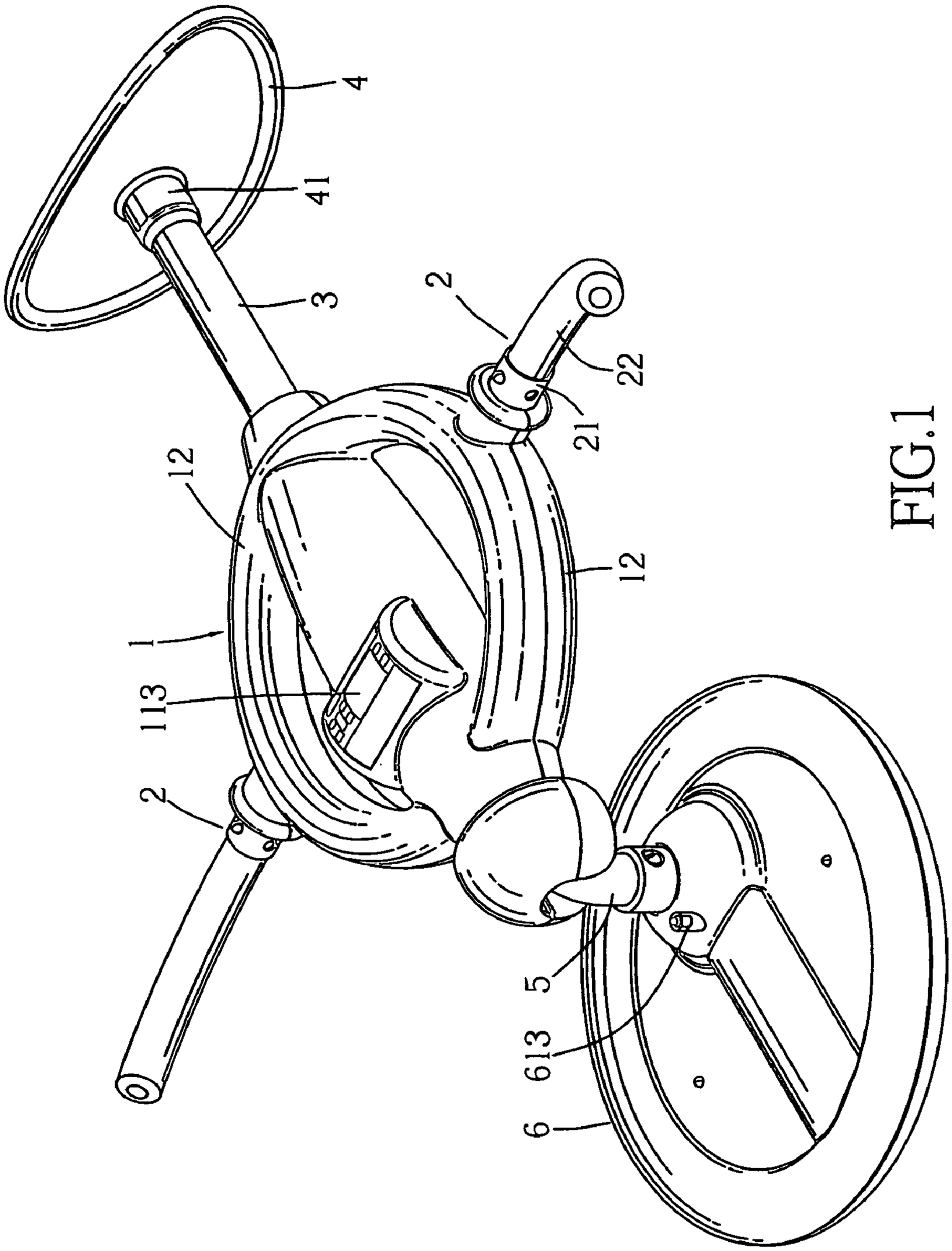


FIG.1

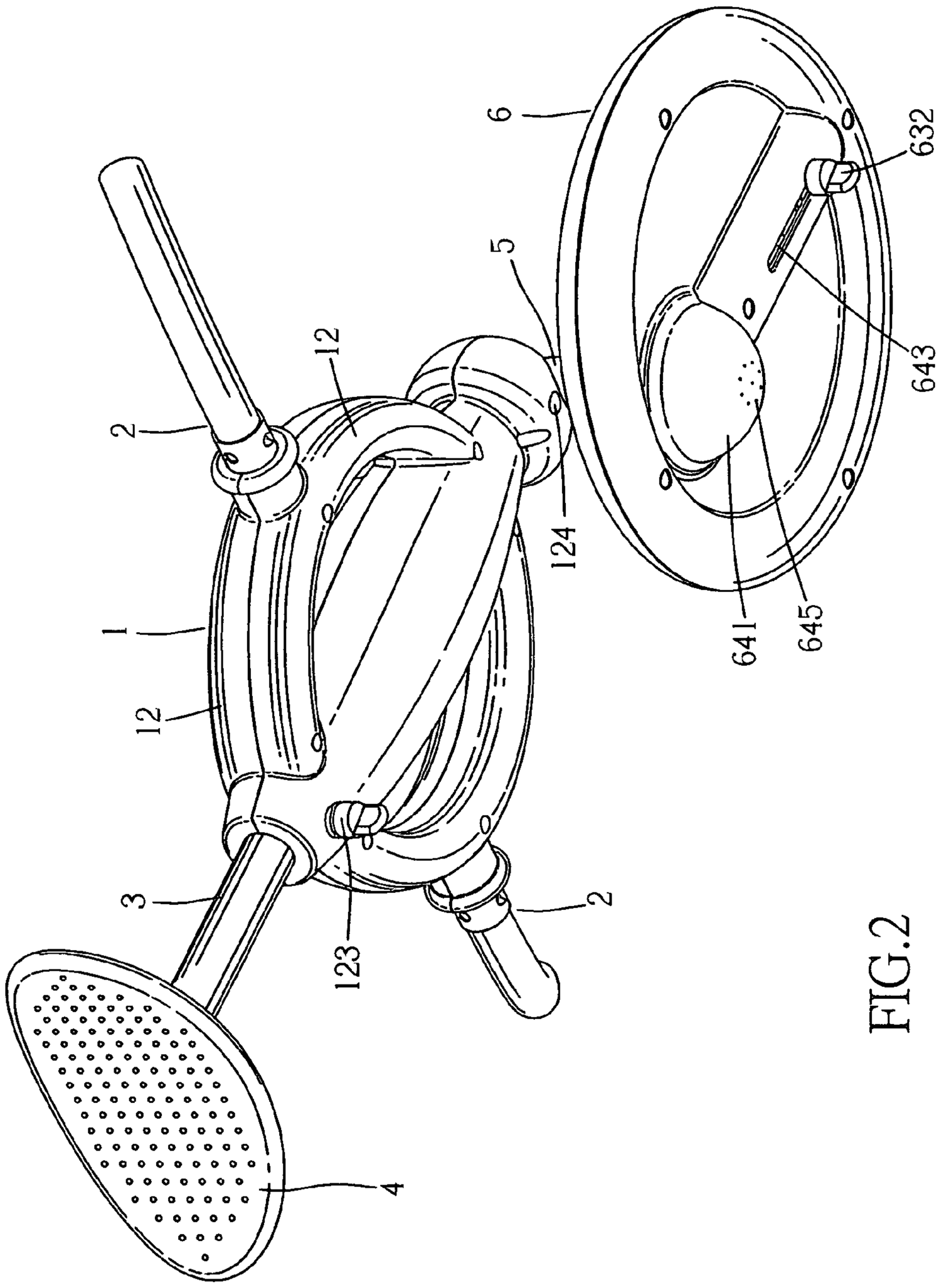
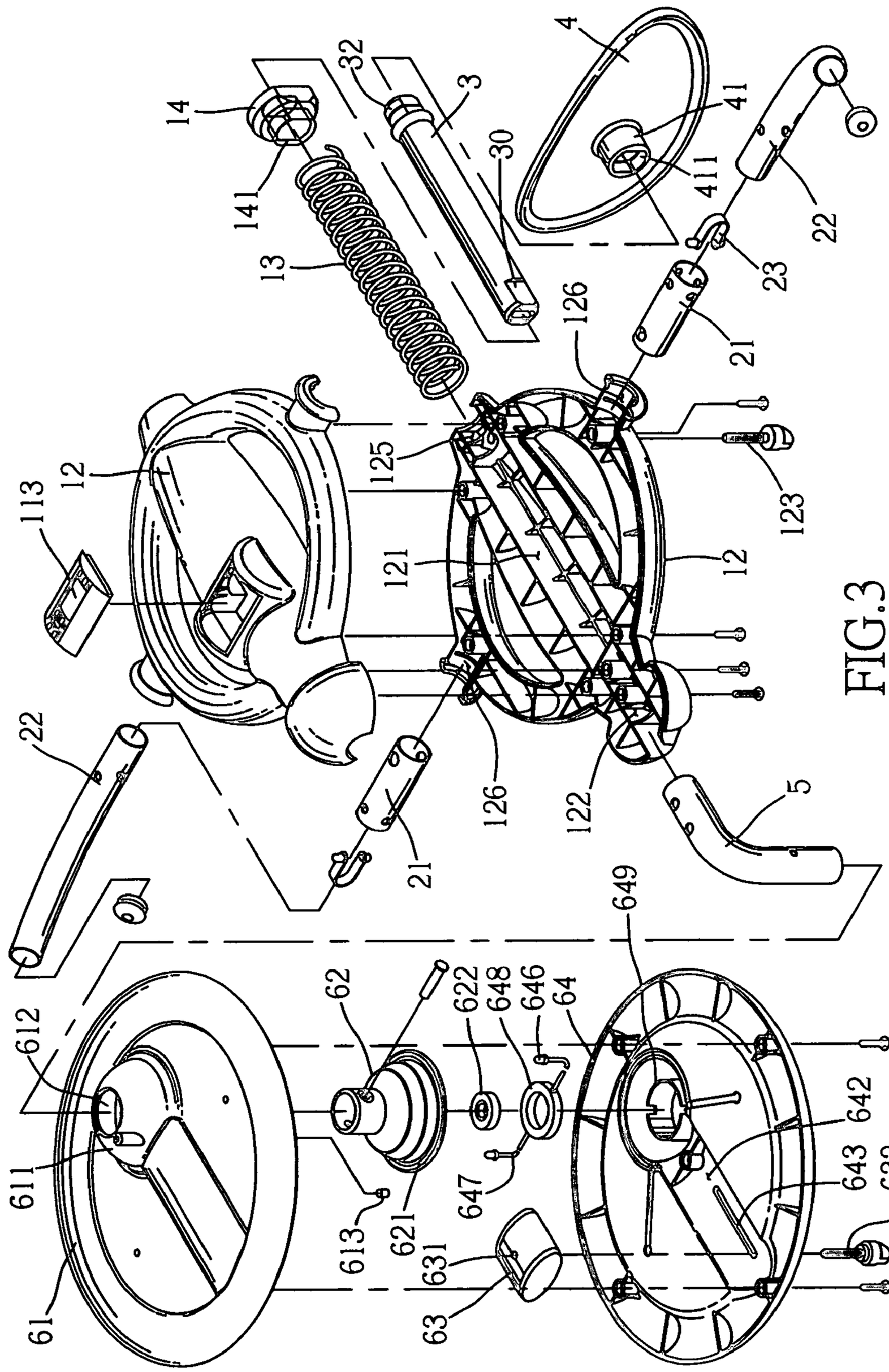


FIG.2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126
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113
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126
122
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649
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622
648
646
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612
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611
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621
631
61
63

FIG.3

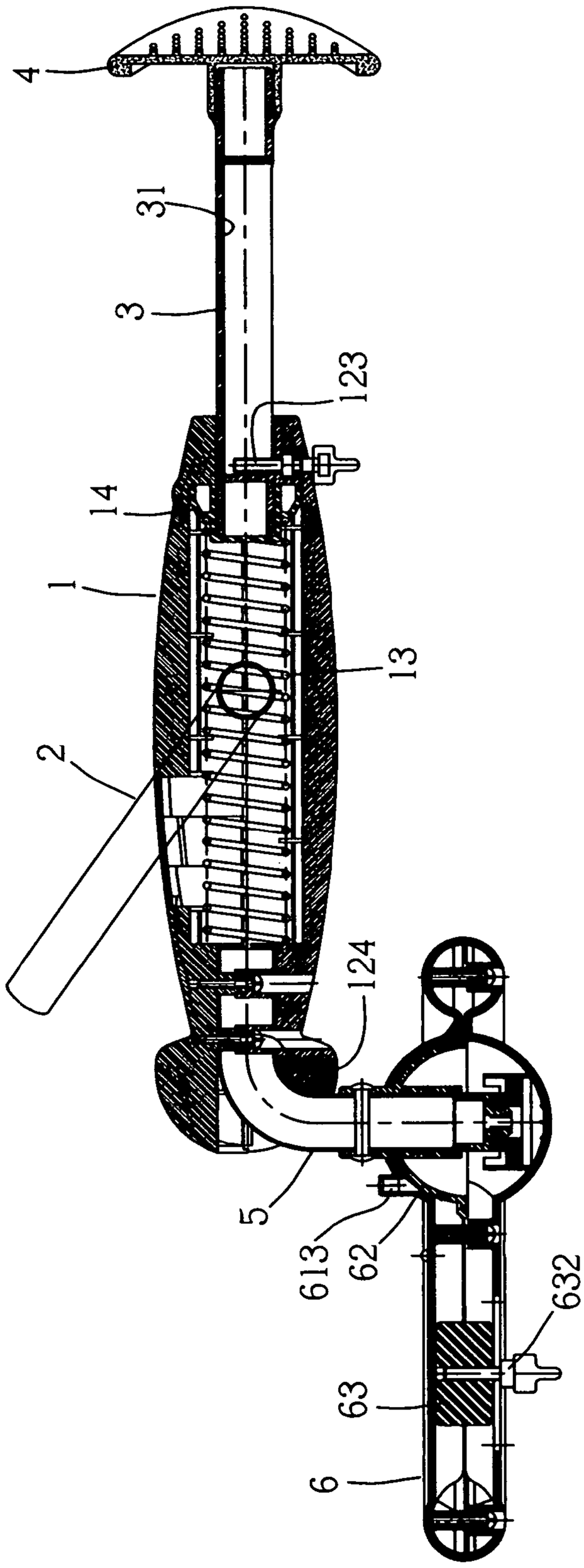
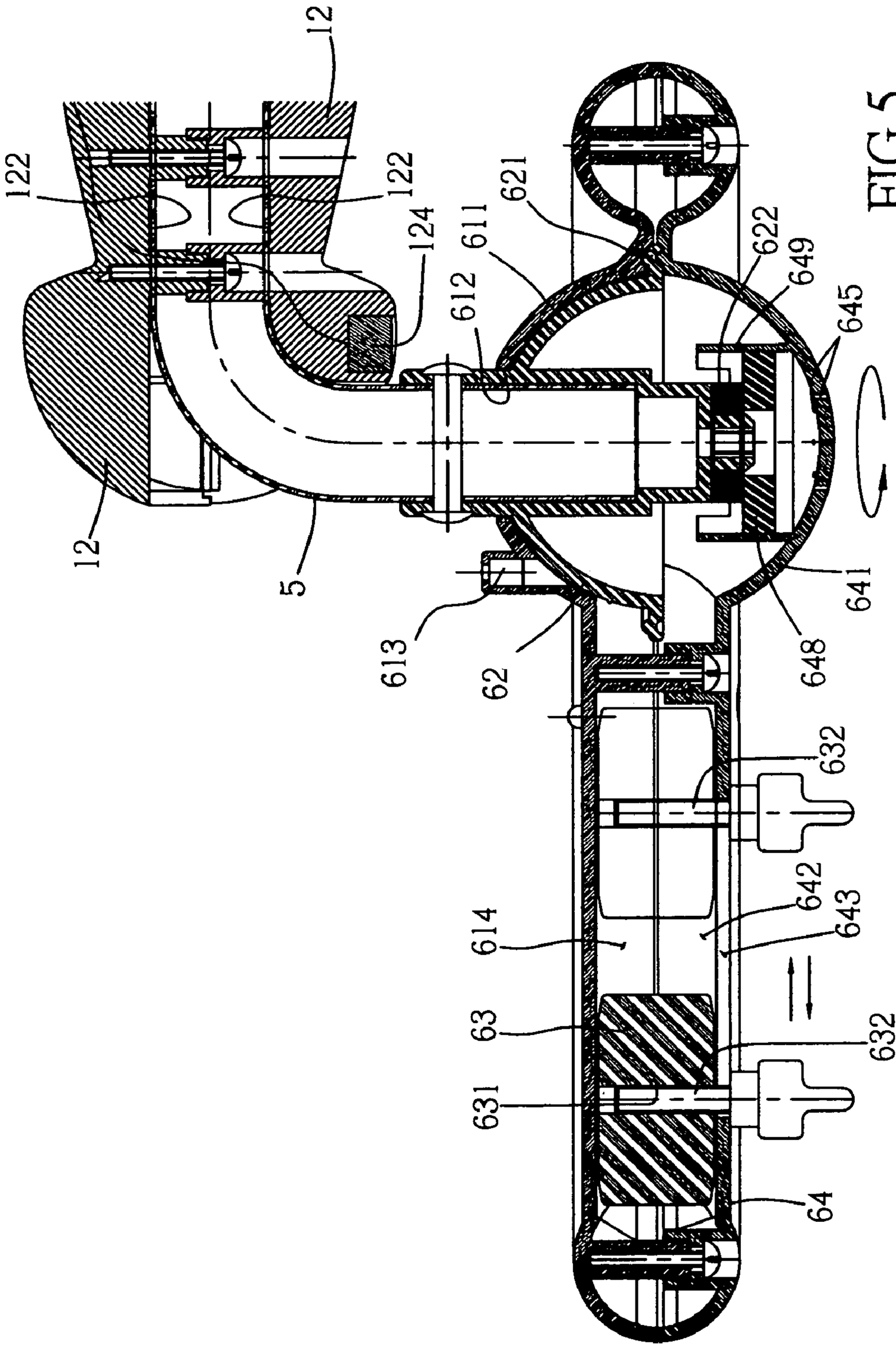


FIG.4


12
122
122
124
611
621
612
622
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645
12
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632
642
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643
63
632
631
64

FIG.5

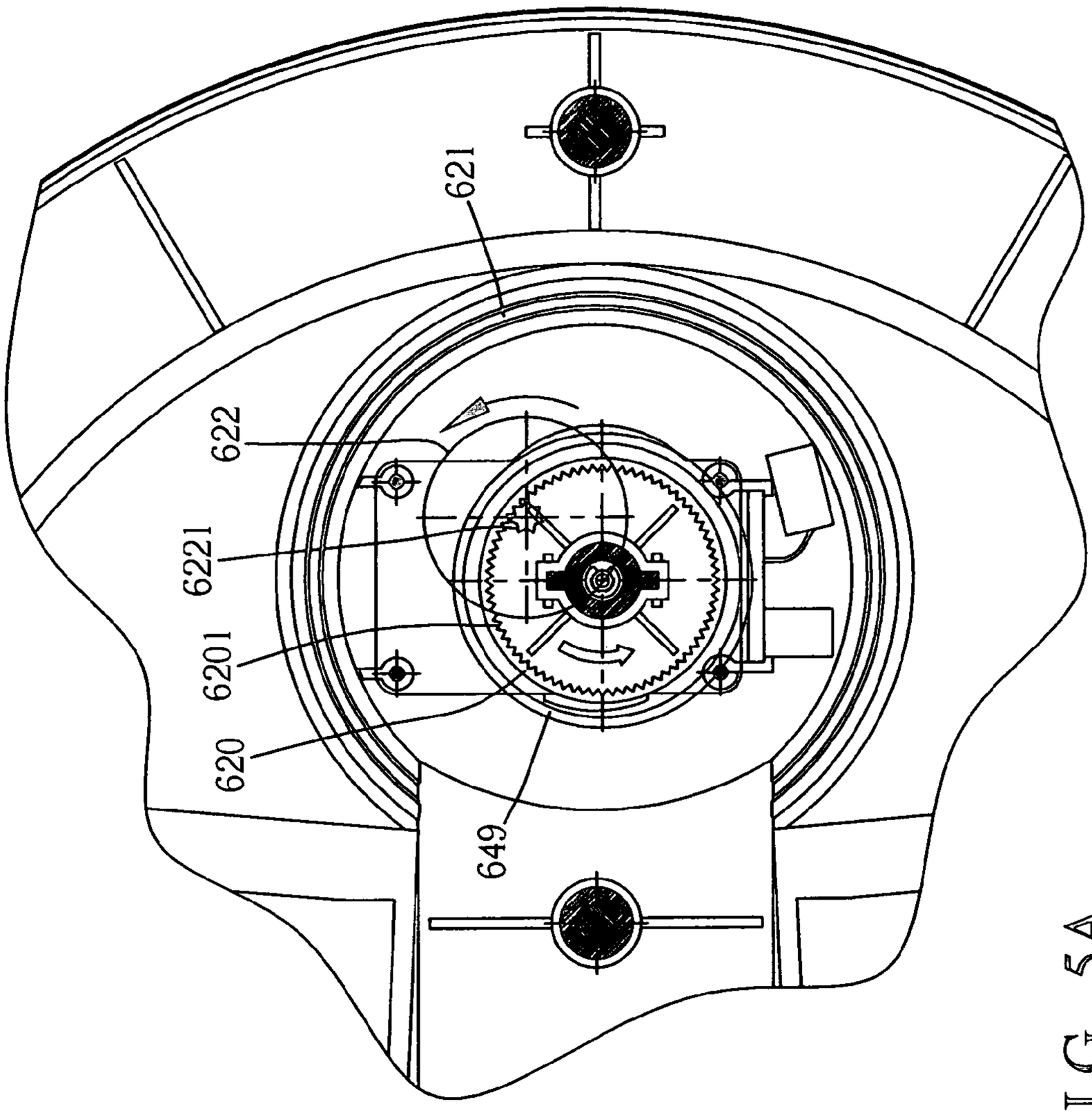
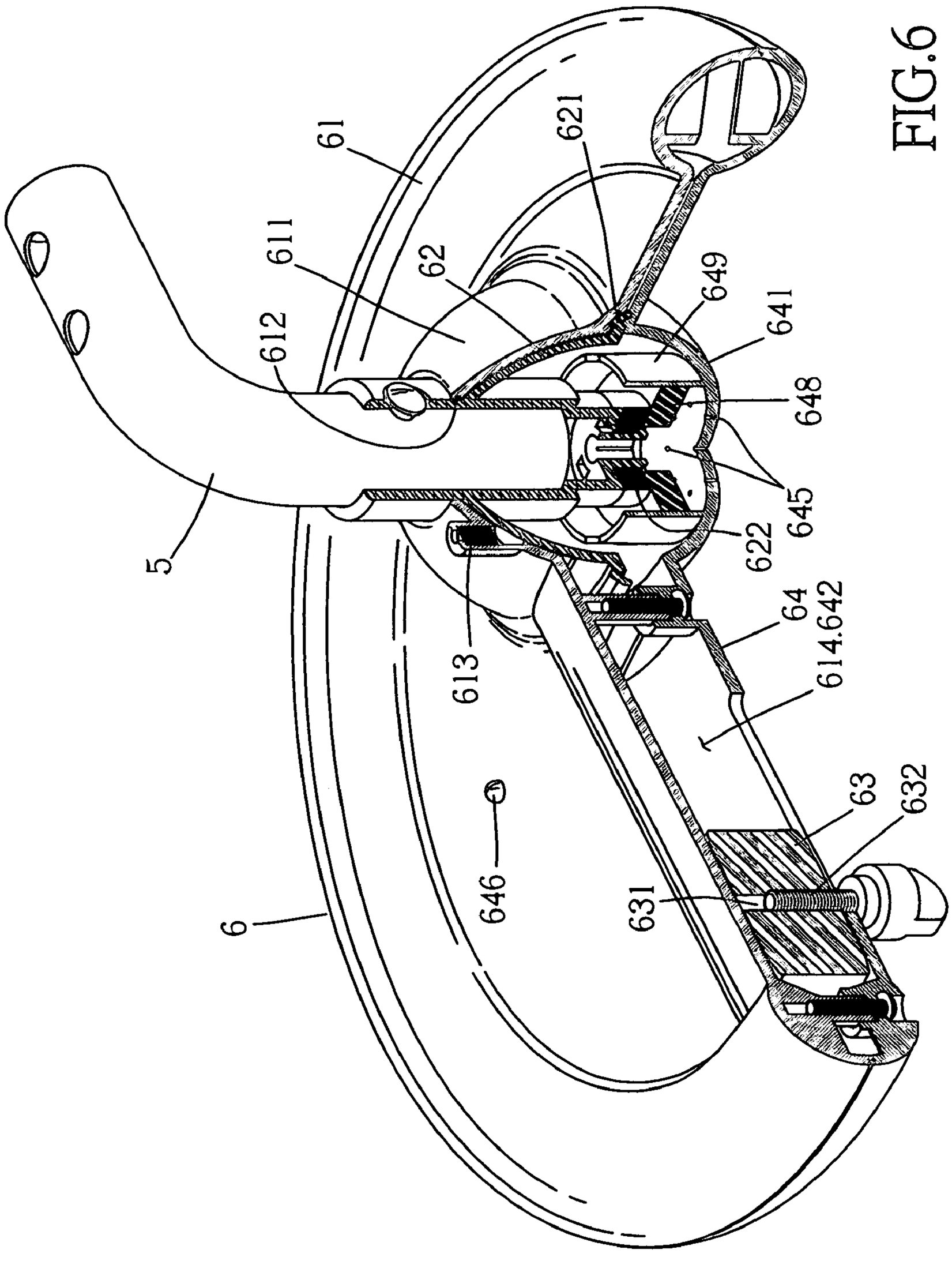


FIG. 5A


61
621
611
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641
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622
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614.642
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FIG.6

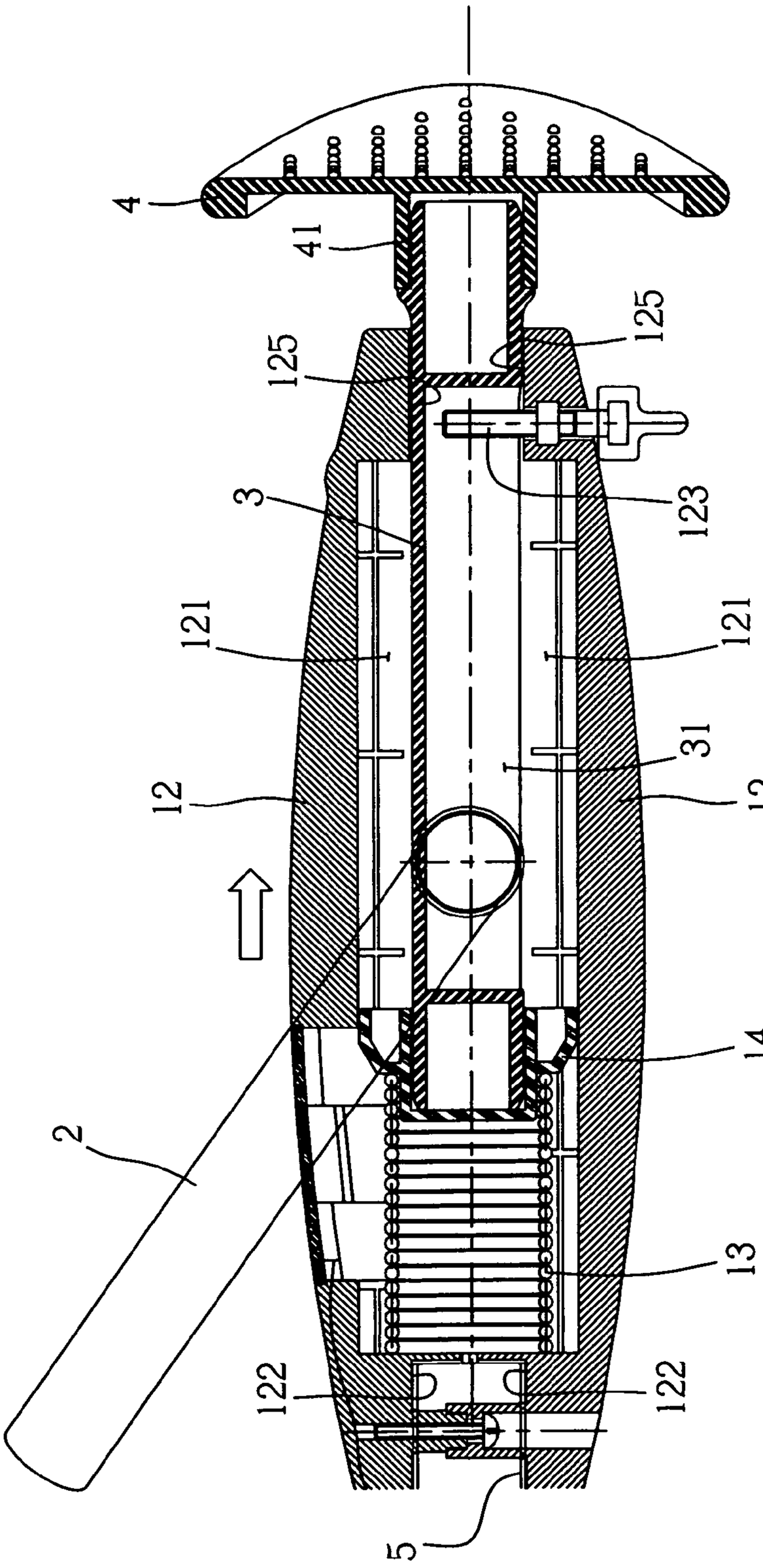

FIG.7

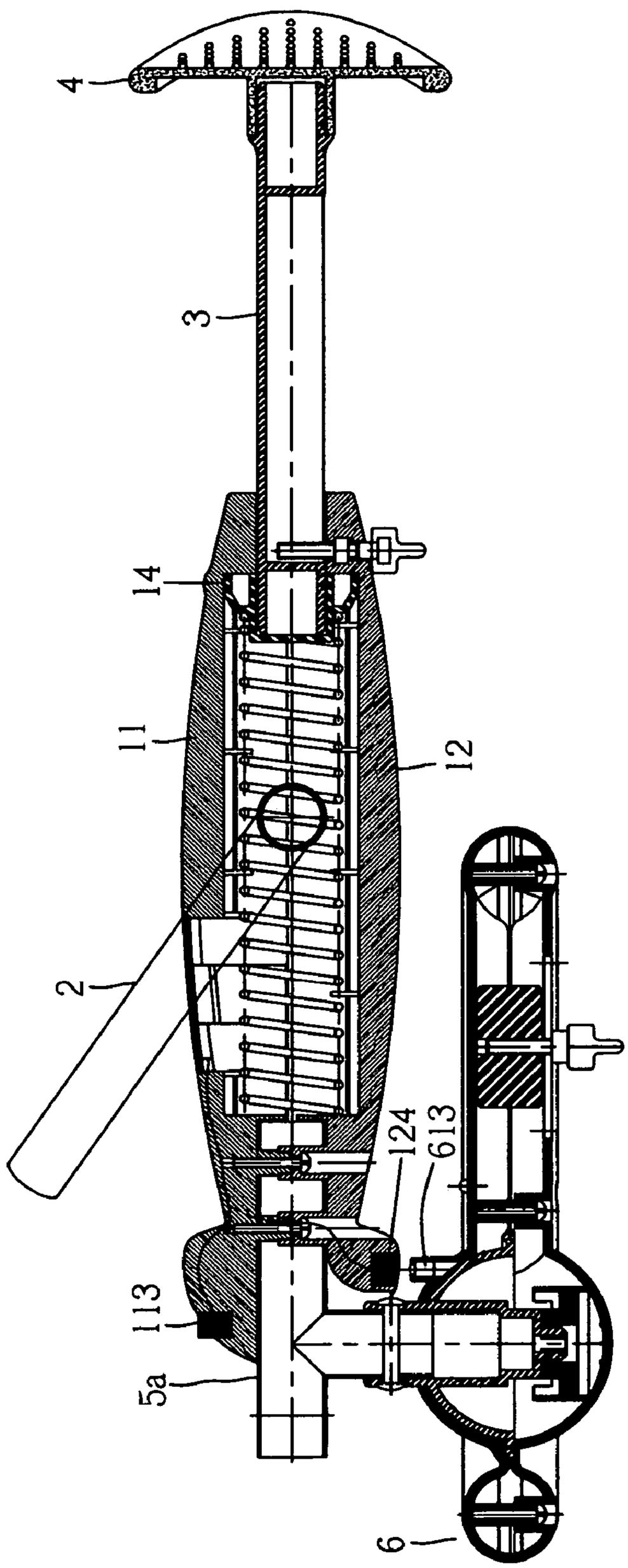

FIG.8

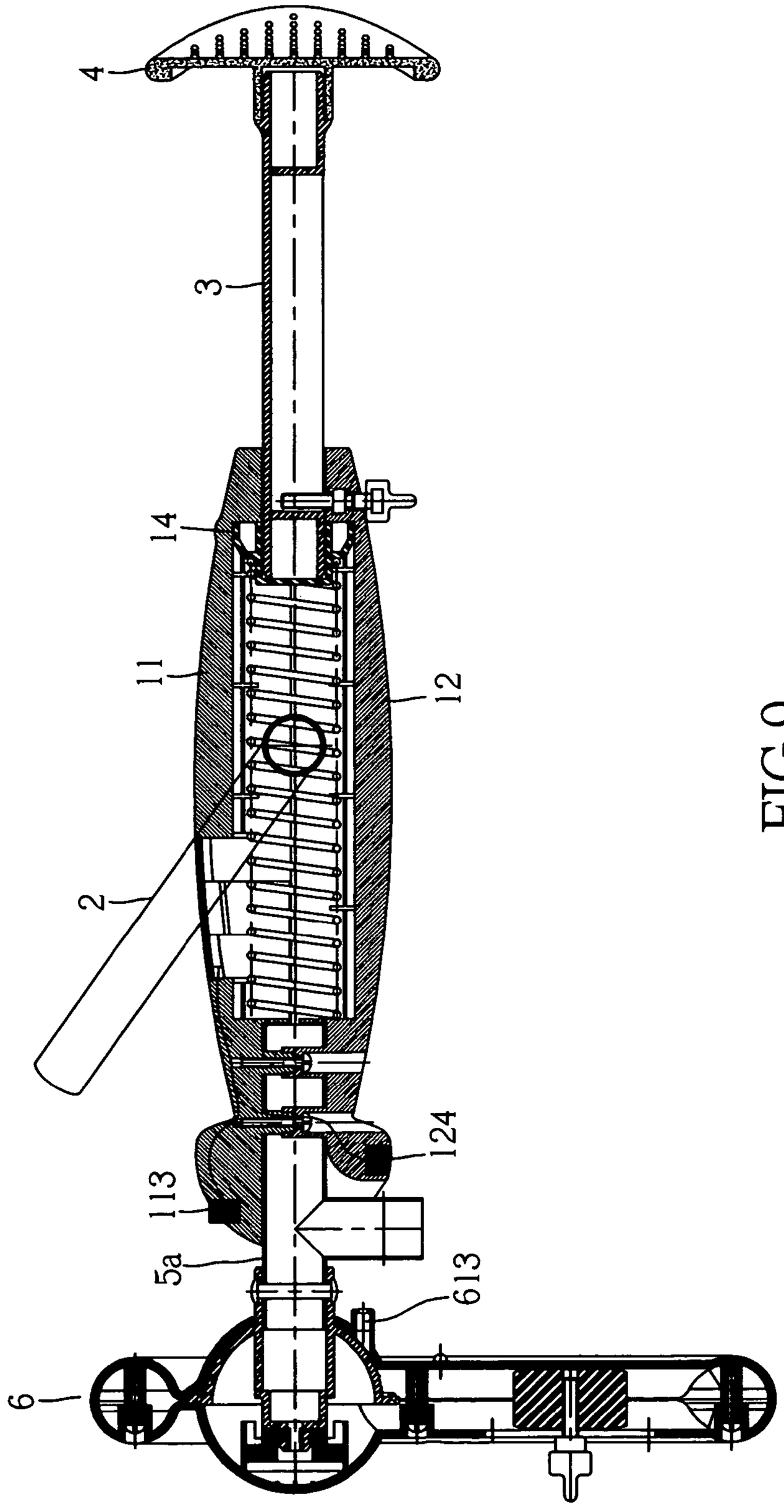

FIG.9

ABDOMINAL EXERCISING DEVICE WITH ROTATION BODY AND COUNTERWEIGHT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an exercising device, and more particularly to an exercising device that can be used to exercise the muscles of a user's arms, waist and abdomen simultaneously, thereby greatly increasing the versatility of the exercising device.

2. Description of the Related Art

A conventional exercising device has a complicated construction with a large volume, so that it occupies larger space and cannot be stored and transported easily and conveniently. In addition, the conventional exercising machine cannot be used conveniently due to its larger bulk. Further, the conventional exercising device has a single function to exercise the muscles of the user's arms, chest, waist or abdomen only, thereby limiting the versatility of the conventional exercising device.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide an exercising device that can be used to exercise the muscles of a user's arms, waist and abdomen simultaneously, thereby greatly increasing the versatility of the exercising device.

Another objective of the present invention is to provide an exercising device, wherein the limit member is unscrewed from the respective casing to detach from the limit channel of the support rod, so that the support rod can be detached from the main body easily and rapidly, there facilitating storage, package and transportation of the exercising device.

A further objective of the present invention is to provide an exercising device, wherein the counterweight of the rotation body is movable in the rotation body by unscrewing the threaded rod to adjust the relative position of the counterweight in the rotation body, so as to adjust the resistance of the counterweight to rotation of the rotation body.

A further objective of the present invention is to provide an exercising device, wherein the generator produces an electric current which is supplied to the sound emitter to produce sound and to the light emitting diodes to produce light, thereby enhancing the versatility of the exercising device.

In accordance with the present invention, there is provided an exercising device, comprising a main body, two handles, a support rod, a resting board, a connecting lever, and a rotation body, wherein:

the main body includes two casings, a slide, and an elastic member;

each of the two casings of the main body has an inside formed with an axially extended slide channel;

the slide of the main body is mounted between the two casings and movably mounted in the slide channel of each of the two casings;

the elastic member of the main body is mounted between the two casings and received in the slide channel of each of the two casings, the elastic member of the main body has a first end urged on the slide and a second end urged on the two casings;

each of the two handles is mounted on the main body;

the support rod is movably mounted in the slide channel of the main body and has a first end secured on the slide of the main body;

the resting board is mounted on the support rod;

the connecting lever is mounted on the main body; and

the rotation body includes a pivot ring secured on the connecting lever, a first disk rotatably mounted on the pivot ring, a second disk rotatably mounted on the pivot ring and combined with the first disk so that the pivot ring is located between the first disk and the second disk, and a counterweight mounted between the first disk and the second disk to rotate therewith.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an exercising device in accordance with the preferred embodiment of the present invention;

FIG. **2** is a perspective view of the exercising device in accordance with the preferred embodiment of the present invention;

FIG. **3** is an exploded perspective view of the exercising device in accordance with the preferred embodiment of the present invention;

FIG. **4** is a side plan cross-sectional view of the exercising device as shown in FIG. **1**;

FIG. **5** is a locally enlarged view of the exercising device as shown in FIG. **4**;

FIG. **5A** is a partially cut-away top plan view of the exercising device as shown in FIG. **1**;

FIG. **6** is a locally enlarged cross-sectional view of the exercising device as shown in FIG. **1**;

FIG. **7** is a schematic operational view of the exercising device as shown in FIG. **4** in use;

FIG. **8** is a side plan cross-sectional view of an exercising device in accordance with another embodiment of the present invention; and

FIG. **9** is a side plan cross-sectional view of the exercising device in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and initially to FIGS. **1–7**, an exercising device in accordance with the preferred embodiment of the present invention comprises a main body **1**, two handles **2**, a support rod **3**, a resting board **4**, a connecting lever **5**, and a rotation body **6**.

The main body **1** includes two circular casings **12**, a slide **14**, and an elastic member **13**.

The two casings **12** of the main body **1** are combined with each other. Each of the two casings **12** of the main body **1** has an inside formed with an axially extended slide channel **121**. An electronic counter **113** is mounted on one of the two casings **12** of the main body **1** and located adjacent to the slide channel **121**. The slide channel **121** of each of the two casings **12** has a first end formed with a first receiving recess **125** and a second end formed with a second receiving recess **122**. A sensing counter **124** (see FIG. **5**) is mounted on the other one of the two casings **12** of the main body **1** and located adjacent to the second receiving recess **122**. Each of

the two casings **12** of the main body **1** has a periphery formed with two opposite mounting recesses **126**.

The slide **14** of the main body **1** is mounted between the two casings **12** and movably mounted in the slide channel **121** of each of the two casings **12**.

The elastic member **13** of the main body **1** is mounted between the two casings **12** and received in the slide channel **121** of each of the two casings **12**. The elastic member **13** of the main body **1** has a first end urged on the slide **14** and a second end urged on the two casings **12**.

Each of the two handles **2** is mounted on the main body **1** and includes a mounting section **21** inserted into and locked in a respective one of the two mounting recesses **126** of each of the two casings **12**, and an operation section **22** adjustably mounted on the mounting section **21** by an elastic snapping member **23**.

The support rod **3** is movably mounted in the slide channel **121** of the main body **1** and has a first end **30** secured on the slide **14** of the main body **1**. The first end **30** of the support rod **3** is flattened, and the slide **14** of the main body **1** is formed with a flattened locking recess **141** for mounting the flattened first end **30** of the support rod **3**.

The support rod **3** has a periphery formed with a limit channel **31** (see FIGS. **4** and **7**), and the main body **1** further includes a threaded limit member **123** screwed onto one of the two casings **12** and extended into the limit channel **31** of the support rod **3** to prevent the support rod **3** from being rotated relative to the main body **1**. In addition, the limit member **123** prevents the support rod **3** from detaching from the main body **1** as shown in FIG. **4**. Alternatively, the limit member **123** is unscrewed from the respective casing **12** to detach from the limit channel **31** of the support rod **3**, so that the support rod **3** can be detached from the main body **1** easily and rapidly, there facilitating storage, package and transportation of the exercising device.

The resting board **4** having an arcuate shape is mounted on the support rod **3** and has a side formed with a protruding mounting lug **41** mounted on a second end **32** of the support rod **3**. The second end **32** of the support rod **3** is flattened, and the mounting lug **41** of the resting board **4** is formed with a flattened locking recess **411** for mounting the flattened second end **32** of the support rod **3**, thereby preventing the resting board **4** from being rotated relative to the support rod **3**.

The connecting lever **5** is mounted on the main body **1**. The connecting lever **5** is substantially inverted L-shaped and has a first section secured in the second receiving recess **122** of each of the two casings **12**.

The rotation body **6** is mounted on the connecting lever **5** and includes a pivot ring **62** secured on a second section of the connecting lever **5**, a first disk **61** rotatably mounted on the pivot ring **62**, a second disk **64** rotatably mounted on the pivot ring **62** and combined with the first disk **61** so that the pivot ring **62** is located between the first disk **61** and the second disk **64**, and a counterweight **63** mounted between the first disk **61** and the second disk **64** to rotate therewith.

The first disk **61** of the rotation body **6** is formed with an eccentrically arranged semi-spherical first protruding portion **611** formed with a mounting hole **612** mounted on the pivot ring **62**. A sensing magnet **613** is mounted on the first protruding portion **611** of the first disk **61** and located adjacent to the mounting hole **612**. The first disk **61** of the rotation body **6** has an inside formed with a first slideway **614** connected to the first protruding portion **611**.

The pivot ring **62** of the rotation body **6** has a semi-spherical portion rested on the first protruding portion **611** of the first disk **61** and having a periphery formed with an annular flange **621** (see FIG. **5**).

The second disk **64** of the rotation body **6** is formed with an eccentrically arranged semi-spherical second protruding portion **641** aligning with the first protruding portion **611** of the first disk **61**. The second disk **64** of the rotation body **6** has an inside formed with a second slideway **642** connected to the second protruding portion **641** and communicating with the first slideway **614** of the first disk **61**.

The counterweight **63** of the rotation body **6** is movably mounted in the first slideway **614** of the first disk **61** and the second slideway **642** of the second disk **64**. The second disk **64** of the rotation body **6** has a surface formed with an elongated guide slot **643** communicating with the second slideway **642**, the counterweight **63** of the rotation body **6** is formed with a screw bore **631**, and the rotation body **6** further includes a threaded rod **632** slidably mounted in the guide slot **643** of the second disk **64** and screwed into the screw bore **631** of the counterweight **63**.

The rotation body **6** further includes a connecting ring **620** (see FIG. **5**A) rotatably mounted on the pivot ring **62** and having an inner wall formed with an annular toothed groove **6201** (see FIG. **5**A), a generator **622** mounted on a bottom of the connecting ring **620** and having a center provided with a gear **6221** (see FIG. **5**A) meshing with and rotated by the toothed groove **6201** of the connecting ring **620**, a sound emitter **648** mounted on the second protruding portion **641** of the second disk **64** and connected to the generator **622** by two electric wires **647**, and a plurality of light emitting diodes (LED) **646** connected to the sound emitter **648** by the two electric wires **647**. Preferably, the second protruding portion **641** of the second disk **64** is formed with a receiving chamber **649** for mounting the sound emitter **648**. The receiving chamber **649** has a bottom formed with a plurality of through holes **645**.

In operation, referring to FIGS. **1–7**, the resting board **4** is initially rested on a user's abdomen. Then, the user's two hands hold the two handles **2** to move the main body **1** toward the resting board **4**, so that the support rod **3** is moved into the slide channel **121** of the main body **1** to compress the elastic member **13** of the main body **1** as shown in FIG. **7**. In such a manner, the user's abdomen applies a force on the resting board **4** to overcome the elastic force of the elastic member **13**, thereby achieving the purpose of exercising the user's abdomen. In addition, the user's two hands apply a force on the two handles **2** to overcome the elastic force of the elastic member **13**, thereby achieving the purpose of exercising the user's arms.

Alternatively, when the user's two hands hold the two handles **2** to swivel the main body **1**, the rotation body **6** is rotated relative to the main body **1** about the connecting lever **5**. At this time, the counterweight **63** provides a resistance to rotation of the rotation body **6**, thereby achieving the purpose of exercising the user's waist and abdomen.

In addition, as shown in FIG. **5**, when the rotation body **6** is rotated relative to the main body **1**, the sensing magnet **613** of the rotation body **6** is movable to align with the sensing counter **124** of the main body **1** to produce an intermittent magnetic signal which is transmitted to the electronic counter **113** of the main body **1** to indicate the rotation number of the rotation body **6**.

In addition, the counterweight **63** of the rotation body **6** is movable in the first slideway **614** of the first disk **61** and the second slideway **642** of the second disk **64** by unscrewing the threaded rod **632** to adjust the relative position of the counterweight **63** in the rotation body **6** as shown in FIG. **5**,

so as to adjust the resistance of the counterweight **63** to rotation of the rotation body **6**.

As shown in FIGS. **5** and **5**A, when the rotation body **6** is rotated about the pivot ring **62**, the connecting ring **620** is rotated simultaneously to rotate the toothed groove **6201** which drives the gear **6221** of the generator **622** to rotate, so that the generator **622** rotates to produce an electric current which is supplied to the sound emitter **648** to produce sound and to the light emitting diodes **646** to produce light, thereby enhancing the versatility of the exercising device. The sound produced by the sound emitter **648** is emitted outward from the through holes **645** of the receiving chamber **649**.

As shown in FIGS. **8** and **9**, the connecting lever **5***a* is substantially T-shaped.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.

What is claimed is:

1. An exercising device, comprising a main body, two handles, a support rod, a resting board, a connecting lever, and a rotation body, wherein:

the main body includes two casings, a slide, and an elastic member;

each of the two casings of the main body has an inside formed with an axially extended slide channel;

the slide of the main body is mounted between the two casings and movably mounted in the slide channel of each of the two casings;

the elastic member of the main body is mounted between the two casings and received in the slide channel of each of the two casings, the elastic member of the main body has a first end urged on the slide and a second end urged on the two casings;

each of the two handles is mounted on the main body;

the support rod is movably mounted in the slide channel of the main body and has a first end secured on the slide of the main body;

the resting board is mounted on the support rod;

the connecting lever is mounted on the main body; and

the rotation body includes a pivot ring secured on the connecting lever, a first disk rotatably mounted on the pivot ring, a second disk rotatably mounted on the pivot ring about a pivot axis and combined with the first disk so that the pivot ring is located between the first disk and the second disk, and a counterweight radially adjusted with respect to said pivot axis mounted between the first disk and the second disk to rotate therewith.

2. The exercising device in accordance with claim **1**, wherein the first disk of the rotation body is formed with an eccentrically arranged semi-spherical first protruding portion formed with a mounting hole mounted on the pivot ring, the first disk of the rotation body has an inside formed with a first slideway connected to the first protruding portion, the second disk of the rotation body is formed with an eccentrically arranged semi-spherical second protruding portion aligning with the first protruding portion of the first disk, the second disk of the rotation body has an inside formed with a second slideway connected to the second protruding portion and communicating with the first slideway of the first disk, and the counterweight of the rotation body is movably mounted in the first slideway of the first disk and the second slideway of the second disk.

3. The exercising device in accordance with claim **2**, wherein the pivot ring of the rotation body has a semi-spherical portion rested on the first protruding portion of the first disk and having a periphery formed with an annular flange.

4. The exercising device in accordance with claim **2**, wherein the second disk of the rotation body has a surface formed with an elongated guide slot communicating with the second slideway, the counterweight of the rotation body is formed with a screw bore, and the rotation body further includes a threaded rod slidably mounted in the guide slot of the second disk and screwed into the screw bore of the counterweight.

5. The exercising device in accordance with claim **2**, wherein the rotation body further includes a connecting ring rotatably mounted on the pivot ring and having an inner wall formed with an annular toothed groove, and a generator mounted on a bottom of the connecting ring and having a center provided with a gear meshing with and rotated by the toothed groove of the connecting ring.

6. The exercising device in accordance with claim **5**, wherein the rotation body further includes a sound emitter mounted on the second protruding portion of the second disk and connected to the generator by two electric wires.

7. The exercising device in accordance with claim **6**, wherein the rotation body further includes a plurality of light emitting diodes connected to the sound emitter by the two electric wires.

8. The exercising device in accordance with claim **6**, wherein the second protruding portion of the second disk is formed with a receiving chamber for mounting the sound emitter.

9. The exercising device in accordance with claim **8**, wherein the receiving chamber has a bottom formed with a plurality of through holes.

10. The exercising device in accordance with claim **1**, wherein the main body further includes an electronic counter mounted on one of the two casings and located adjacent to the slide channel, a sensing counter mounted on the other one of the two casings, and the rotation body further includes a sensing magnet mounted on the first disk, and the sensing magnet of the rotation body is movable to align with the sensing counter of the main body to produce an intermittent magnetic signal which is transmitted to the electronic counter of the main body to indicate a rotation number of the rotation body.

11. The exercising device in accordance with claim **1**, wherein each of the two casings of the main body has a periphery formed with two opposite mounting recesses, and each of the two handles includes a mounting section locked in a respective one of the two mounting recesses of each of the two casings, and an operation section adjustably mounted on the mounting section by an elastic snapping member.

12. The exercising device in accordance with claim **1**, wherein the first end of the support rod is flattened, and the slide of the main body is formed with a flattened locking recess for mounting the flattened first end of the support rod.

13. The exercising device in accordance with claim **1**, wherein the support rod has a periphery formed with a limit channel, and the main body further includes a threaded limit member screwed onto one of the two casings and extended into the limit channel of the support rod to prevent the support rod from being rotated relative to the main body.

14. The exercising device in accordance with claim 1, wherein the resting board has a side formed with a protruding mounting lug mounted on a second end of the support rod.

15. The exercising device in accordance with claim 14, wherein the second end of the support rod is flattened, and the mounting lug of the resting board is formed with a flattened locking recess for mounting the flattened second end of the support rod, thereby preventing the resting board from being rotated relative to the support rod.

16. The exercising device in accordance with claim 1, wherein the connecting lever is substantially inverted L-shaped.

17. The exercising device in accordance with claim 1, wherein the connecting lever is substantially T-shaped.

18. The exercising device in accordance with claim 1, wherein the slide channel of each of the two casings has a first end formed with a first receiving recess and a second end formed with a second receiving recess, the connecting lever has a first section secured in the second receiving recess of each of the two casings, and the pivot ring of the rotation body is secured on a second section of the connecting lever.

19. The exercising device in accordance with claim 1, wherein the two casings of the main body are combined with each other.

20. The exercising device in accordance with claim 1, wherein the resting board has an arcuate shape.

* * * * *